

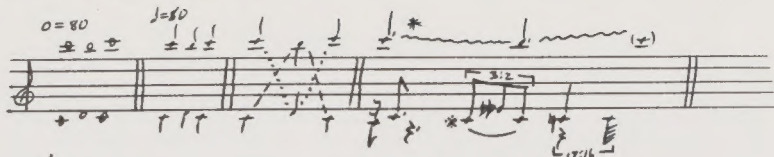
"Structure Art and Pure Mathematics" by Henry Flynt (1960)

In some art--music, visual art, poetry, and the rest--there is a tendency for "structure" to predominate. When structure tends to predominate in art, then if the artist wants the interest of the structure to predominate, wants to communicate the interest of the structure, I will say that the art is "structure art." Much structure art is a vestige of Serious Art; for example, of medieval music, which was conceived to be a metaphysical science. Now consider, for example, a piece of structure music, a serial piece. The "structure" of the piece is not (in) the sounds in (a performance of) the piece. It is a categorization of the sounds, that represented by the score together with that typically given in the first instance by the composer in an "analysis" of the "piece" (actually the analysis is more a part of the piece). Thus if I speak of the "intended structure" of a piece it will be the composer's categorization; and I will speak of others' categorizations, the audiences' categorizations, as "associated structures" of the piece. (To some extent the composer can work to the audience's background so that one association is more probable than another.) Many structure artists do claim "that the structure (particularly the intended structure) is in the sounds" in that, for example, there is an objective relation between the categorization and the sounds. This claim is unjustifiable; I will return to it later. There is an important division of structure art into two kinds, exemplified by the fugue and total serial music, according to how the structure is "appreciated." In the case of a fugue, one is aware of its structure in listening to it; one mentally imposes "relationships," a categorization (hopefully the intended one) on the sounds while listening to them; that is, there is an "associated artistic structuring by oneself." In the case of total serial music, the structure is such that this cannot be done; one just has to read an "analysis" of the music, a specification of relationships. Incidentally, there is another, less important kind of art in which the important thing is categorization; the art involving conceptual cleverness, play with the concepts of the art-form such as, in music, "the score," "performer versus listener," "playing a composition." In structure poetry, there is a lack of concern with syntactical structure. The poetry is mere phonemes or graphemes with an artistic structure.

The following is an attempt at a formal definition of "artistic structure." The artistic structure of a production is a division or segmentation of the raw work (the body of material), a grouping of the segments, and a "weighting" of the subgroupings in this grouping (according to their "structural importance"); that is, it is a system of definitions. When structure is regarded as the most important aspect of the production, the production is merely a diagram illustrating the description of its structure. Certain pieces of music are merely acoustical diagrams of their structures. Such a production consists of the production proper together with a concept poem, a body of definitions. Here is a canonical method of specifying such structures. Given the raw work, the informal description of its structure is as follows. The segments are blocks of color; the first two are grouped together, and each of the others is grouped separately, the weights of the successive groups are 5, 2, 4, 2, 4 (2 is the weight of e.g. a bridge passage in music). The formal specification is  $(AB)_5(C)_2(D)_4(E)_2(F)_4$ ; that is, the production is structurally a  $(AB)_5(C)_2(D)_4(E)_2(F)_4$ .

The method, then, is that the terminology for a certain structure is formed from letters corresponding to segments, parentheses to indicate grouping, and numerical subscripts to indicate weights. (Does the method need to be elaborated to take into account relations between segments?) It can be seen that this kind of structure is definitional, stipulational, like logical syntax; it is not intuitive and statistical like an individual's use of inflection in speech. I now turn to the analyses of the structure of a production made by critics, what I call "associated definitions of the structure" (in line with the terminology of the previous paragraph). Consider the following examples.

Organ,  
one manual



\* pseudo-glissando: execute by going early to next pitch

In each example, the actual sounds, the body of material, is exactly the same. The difference is in the different structures defined on the material. The examples substantiate my contentions that the structure is not in the sounds; that the composer's analysis of the piece is really a definition and a part of the piece; and that the critics' analyses of the structure are definitions attached to the piece, not discoveries of intrinsic properties of the sounds. As another example, consider the difference between hearing the "Sanctus," Missa Prolationum of Ockhegem, in no meter (by a non-European listener), in one meter (by a lay European listener), and in four meters (the intended structure). Arguments such as the one over whether the structure of Webern's music is "really" motivic or serial are absurd, since Webern himself did not define this point. Many academic structural analyses of art have been irrelevant to the aesthetics of the works.

The purpose throughout all this art is dual; structure or concept art tries to be, first, music, visual art, or whatever (which suggests that it is to be listened to, or looked at), and, something else entirely, to be valuable for its structure or conceptual cleverness. Then when the structure is "hidden," "unexperiencable," when it can only be appreciated by reading the "analysis," why put emphasis on the body of sound, light, or whatever, why listen to structure music, why look at structural visual art, why even call them "music," "visual art"? Why not throw away the bodies of sound, light, or whatever, and keep the "analyses" of the structure as the works of art? In general, logic, and experience (with the results of the artists' efforts), show that the dual purpose of structure art consists of irreconcilable objectives; that one can be attained only at the other's expense. Which objective are the structure artists trying to attain?--they obviously have no idea. Structure art represents obsolete, confused categories of activities, categories which by now are obscurantist. Structure (or concept) music, for example, needs straightening out, first, by ceasing to call it "music," and starting to say that the sound (or activity) is used only to carry the structure or conceptual cleverness, and that the real point is the structure or conceptual cleverness--the categorization--and then it will be seen how limited, impoverished the structure of these productions trying to be music are. When you make the change, then you are led to a far more consistent, integral activity, the same one arrived at below through a consideration of pure mathematics. Games of intellectual skill such as chess fall into this same category; since, after all, they can be regarded as formalist mathematics.

Next I will discuss pure mathematics. Originally, mathematics was a system of beliefs, a doctrine, about the entities numbers, points, polygons, and so forth (Pythagoras, Euclid, Platonic geometry). As mathematicians became skeptical, and thus less desirous of resting the importance of mathematics on the validity of these beliefs, they changed their minds about what the purpose of mathematics is. The purpose became for the theorems to be true if the axioms are. In the nineteenth century, as a result of e.g. the ideas of Riemann, they became unconcerned to claim that their axioms are true. They began to say that the value of mathematics is "aesthetic." Here is when mathematics becomes a subject for this essay; when it becomes pure mathematics, when its value is not claimed to be that of technology or natural science, but rather more an aesthetic value, when it becomes "adoctrinal culture." Mathematics becomes something to be considered alongside art. When I became interested in contributing to pure mathematics, for reasons of taste I wanted to de-emphasize discovery in mathematics, mathematics as discovering theorems and proofs. (Such discovery bored me.) The first way I thought of to de-emphasize discovery was that



since the value of pure mathematics is now regarded as conceptual interest, aesthetic rather than scientific value, why not try to make up aesthetic theorems, without considering whether they are true. The second way was to find that the conventional claim that theorems and proofs are discovered is unjustifiable; I will return to this point later. In the twentieth century, as a result of the ideas of Hilbert, and then Carnap, mathematicians became unconcerned to claim that mathematical "statements," the mathematical object language, are (substantive) assertions having truth value (as are English statements). Rather, they are "merely" series of signs formed according to certain rules: formalist mathematics. Then my third way of de-emphasizing discovery was to open up unexplored regions of formalist mathematics. The resulting mathematics still had statements, theorems, proofs, but the latter weren't "discovered" the way they traditionally were.

Now exploration of the wider possibilities of pure mathematics opened up by me tends to lead beyond the form of "making statements," "proving," and the like, so that the term "pure mathematics" becomes completely incongruous. The category of pure mathematics--a vestige ultimately of the old system of beliefs canonized by Plato (hence the form of statements, proving, and the like)--is an obsolete category. My contributions to pure mathematics lead to an integral, general activity of which the point is categorizations (having the value of being "well-formed"); the contributions need to be classified as such an activity rather than as pure mathematics to escape confusion. Traditional mathematics (mathematics as discovery), reformulated, explicated to take my findings into account, would be an untypical, small but intensively developed part of such an activity.

The proponents of structure art, pure mathematics, and chess make similar claims for them. I have mentioned the claims that structure is an objective property of things; and that mathematical theorems and proofs are discovered; and there is a similar claim for games of intellectual skill. Two important notions associated with these fundamentally identical claims require comment. There is the notion that contribution to structure art, pure mathematics, and chess requires high intelligence, the discovery of implications; the notion of intelligence as the ability to discover implications. Then, there is the notion that structure (as in mathematics pre-eminently) is an objective property of things, capable of discovery, demonstration, rational cognition--with particular reference to language, art, and the like--whereas meaning, expression, and emotion are not. (These pretensions are traditionally an essential aspect of structure art, pure mathematics, and chess.) Both notions come down to the belief that there can be an objective relation between a name and its referents; for example, an objective relation between the metamathematical term "true theorem" and certain theorems, or an objective relation between "having serial structure" and a body of sound, or between "checkmate" and checkmates. As I said, these notions are discreditable, as can be seen from my Philosophy Proper and Primary Paradox. Thus the notion of intelligence, pretension of intellectual superiority, as what mathematicians, chess players, and the like have; and the prejudice in favor of structure; cannot be defended. It is about time that these notions be discarded.